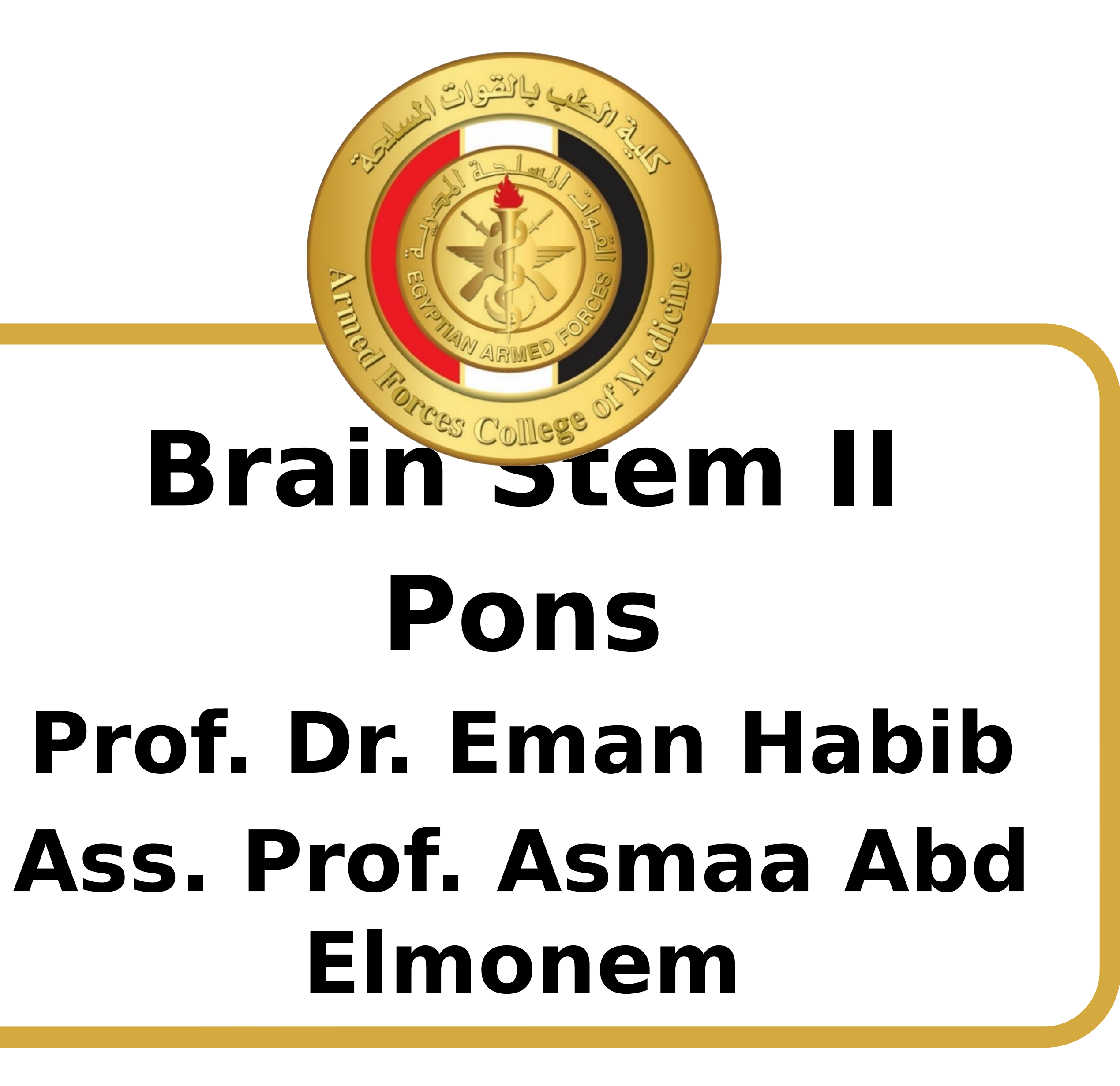


Armed Forces College of Medicine
AFCM



Brain Stem II
Pons

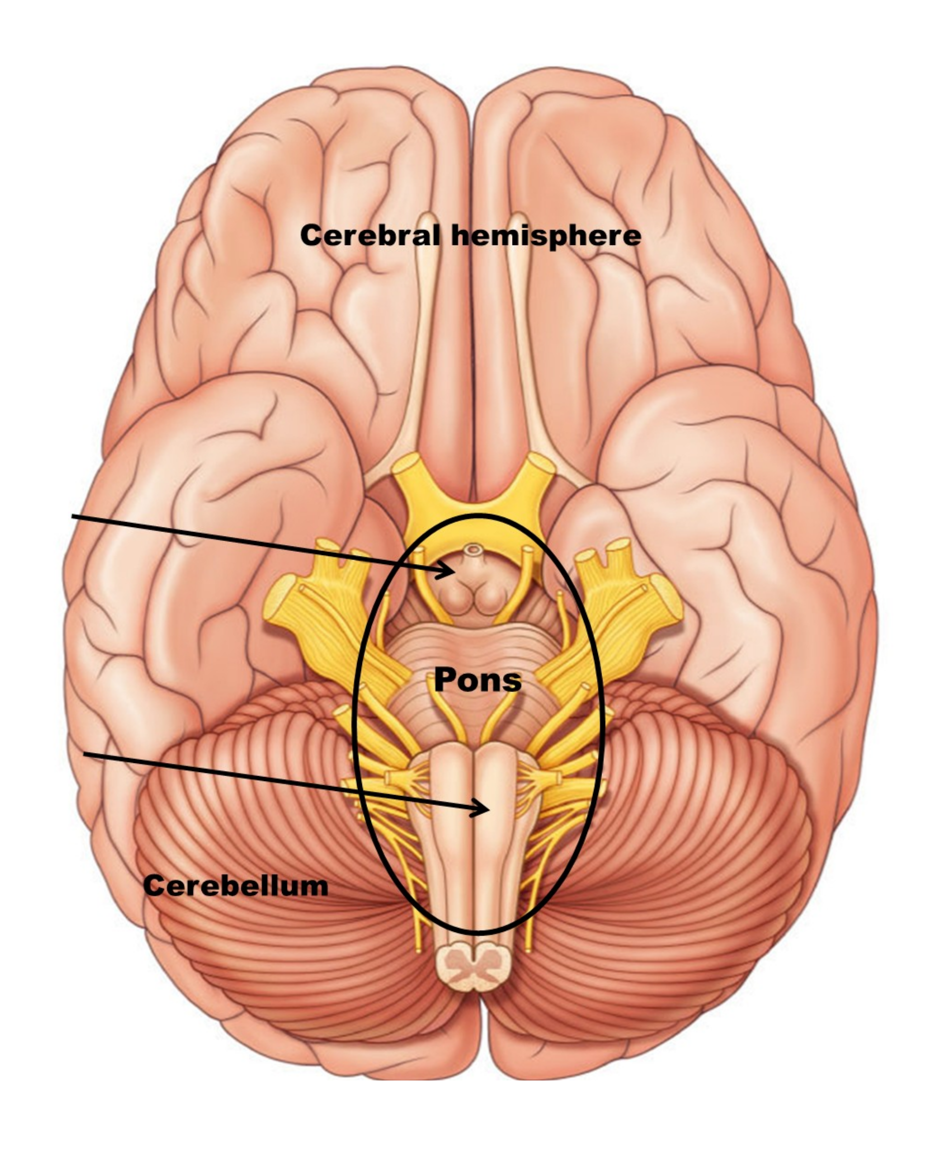
Prof. Dr. Eman Habib
Ass. Prof. Asmaa Abd Elmonem

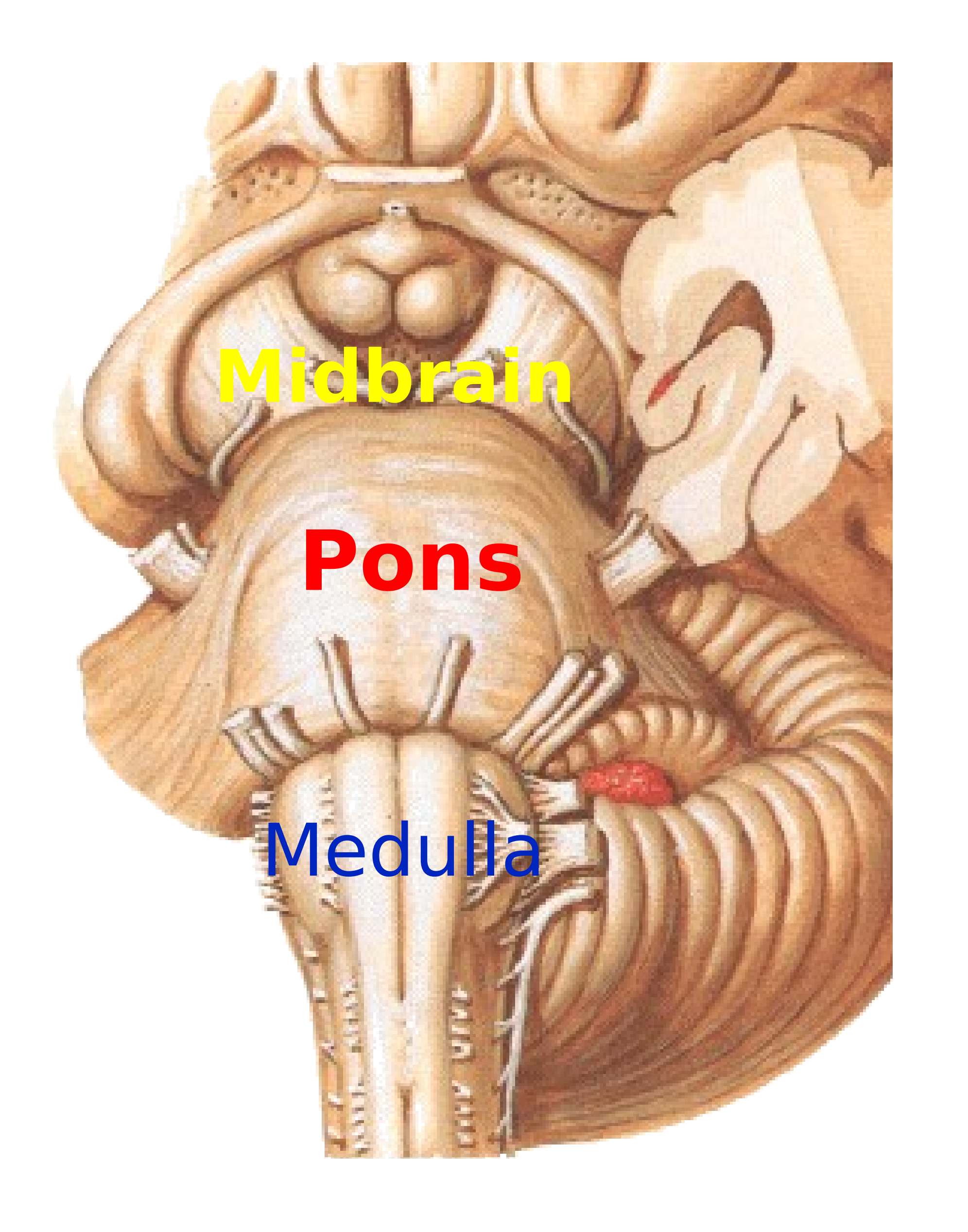
INTENDED LEARNING OBJECTIVES (ILO)



By the end of this lecture the student will be able to:

1. **Describe gross morphology of ventral and dorsal aspects of Pons**
2. **Describe the internal structure and correlated functions of different levels of pons.**

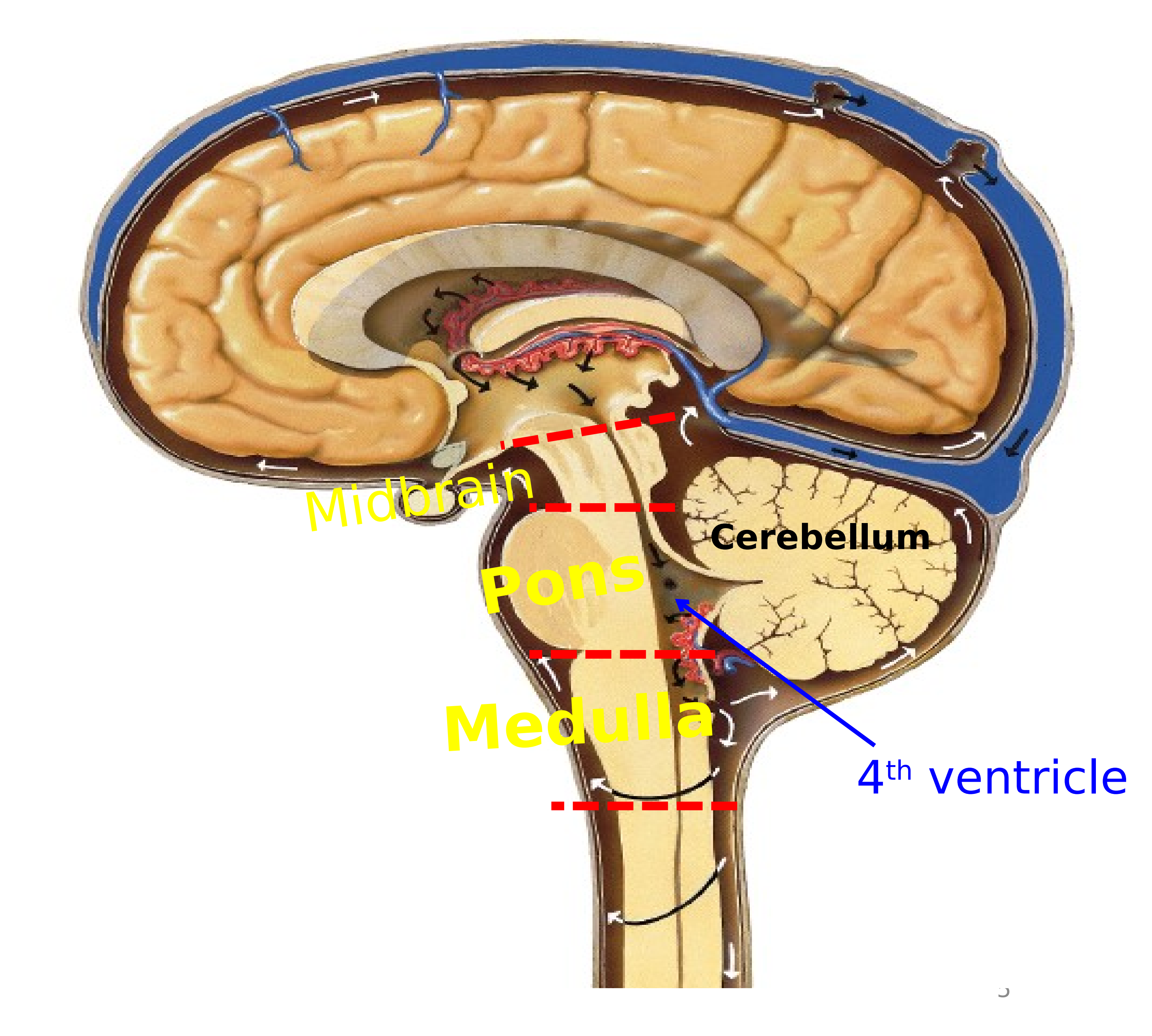

Cerebral hemisphere
Pons
Cerebellum


Midbrain
Pons
Medulla

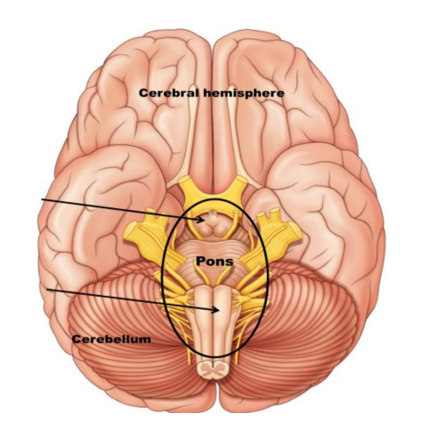
Pons

EXTENSION: from the upper border of the medulla oblongata (below) to the lower border of the mid brain (above).

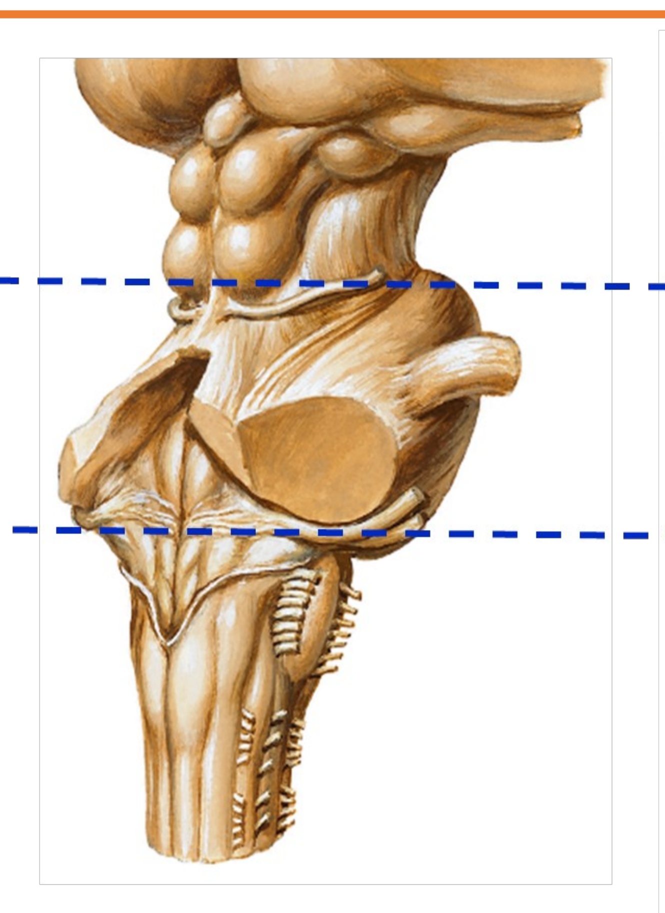
It forms the upper part of the floor of the 4th ventricle

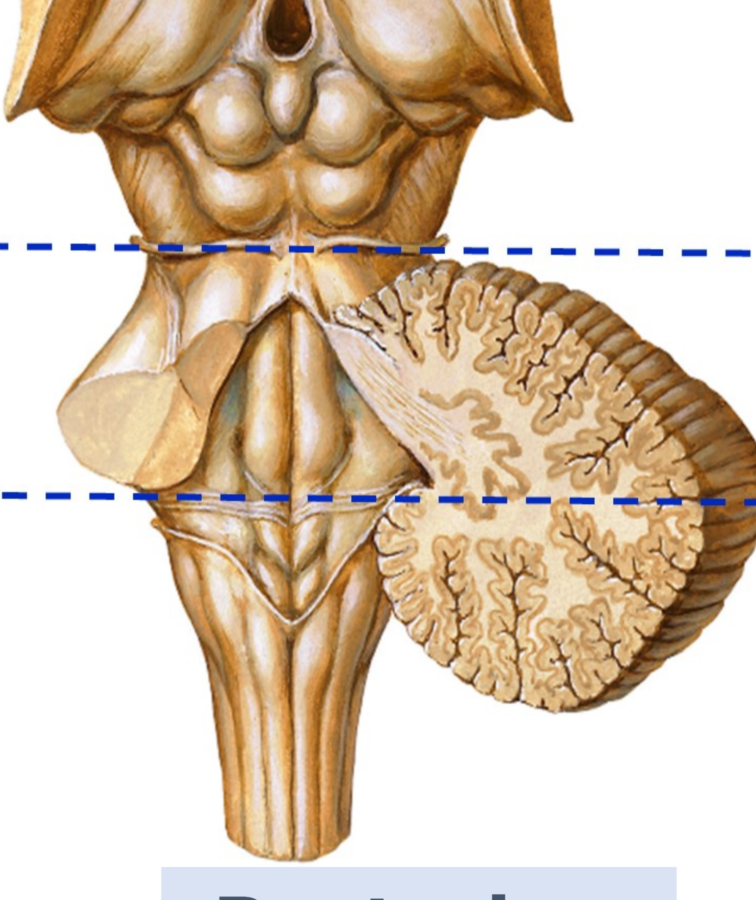


SURFACES OF BRAIN STEM



- **Midbrain**
- **Pons**
- **Medulla Oblongata**





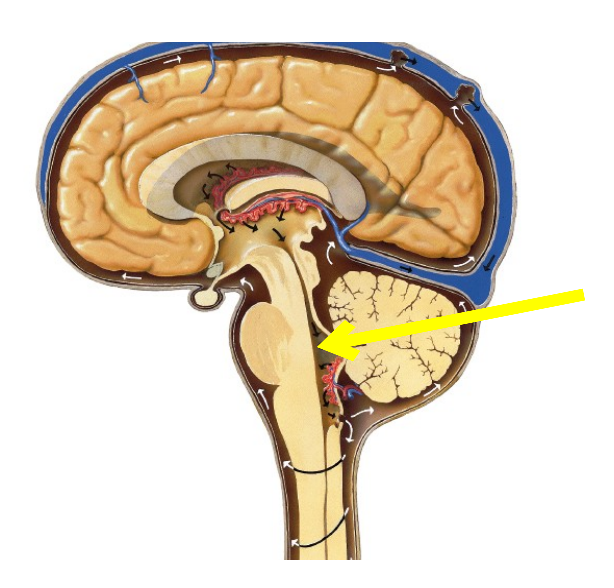


Posterior surface



- **Basilar Sulcus (Sulcus Basilaris) for basilar artery**
- **Transverse pontine ridges**
- **Middle cerebellar peduncle (MCP)**

Posterior Surface of PONS



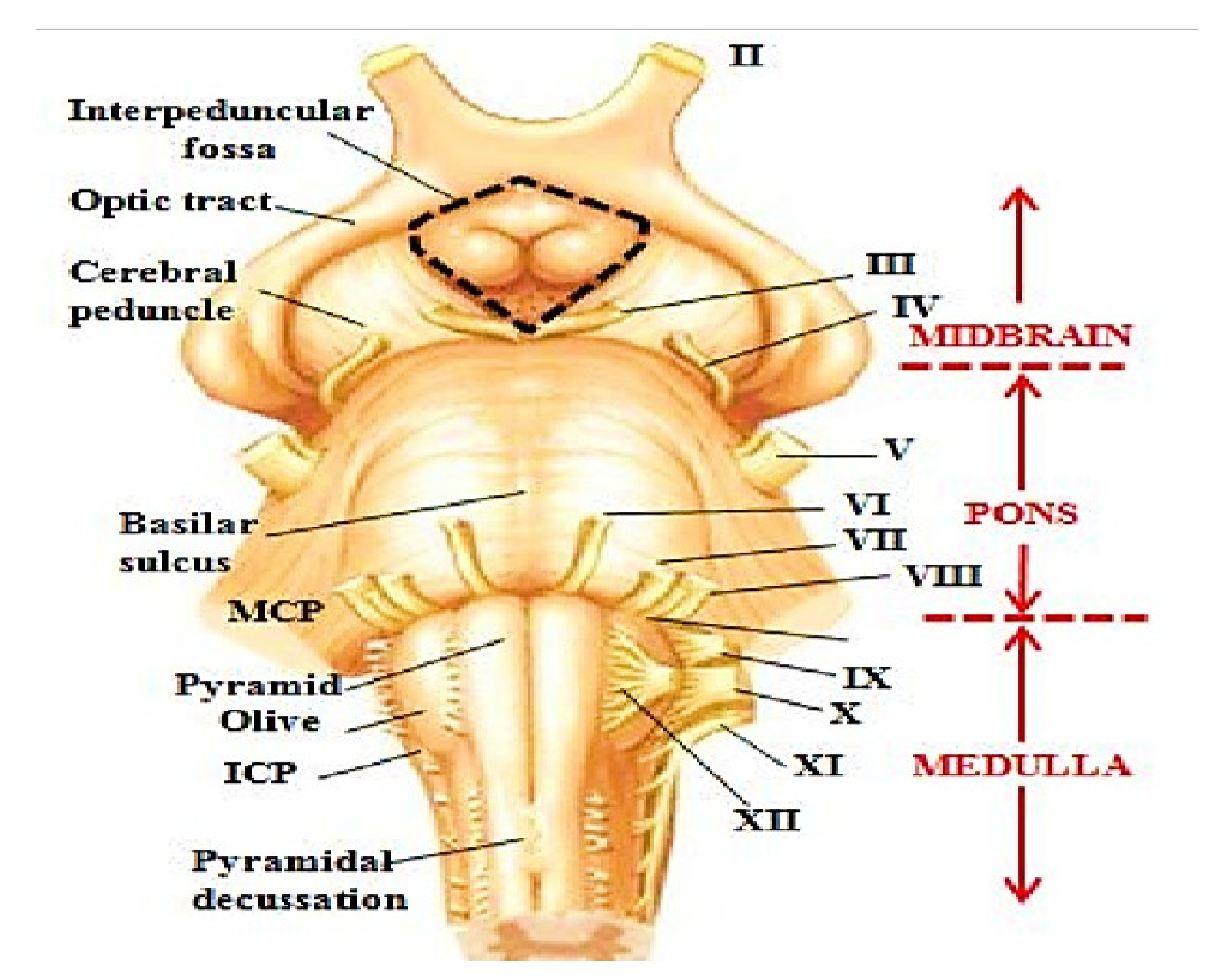
- **Median sulcus**
- **Superior fovea**

It is a depression between facial colliculus & vestibular area.

Medial eminence

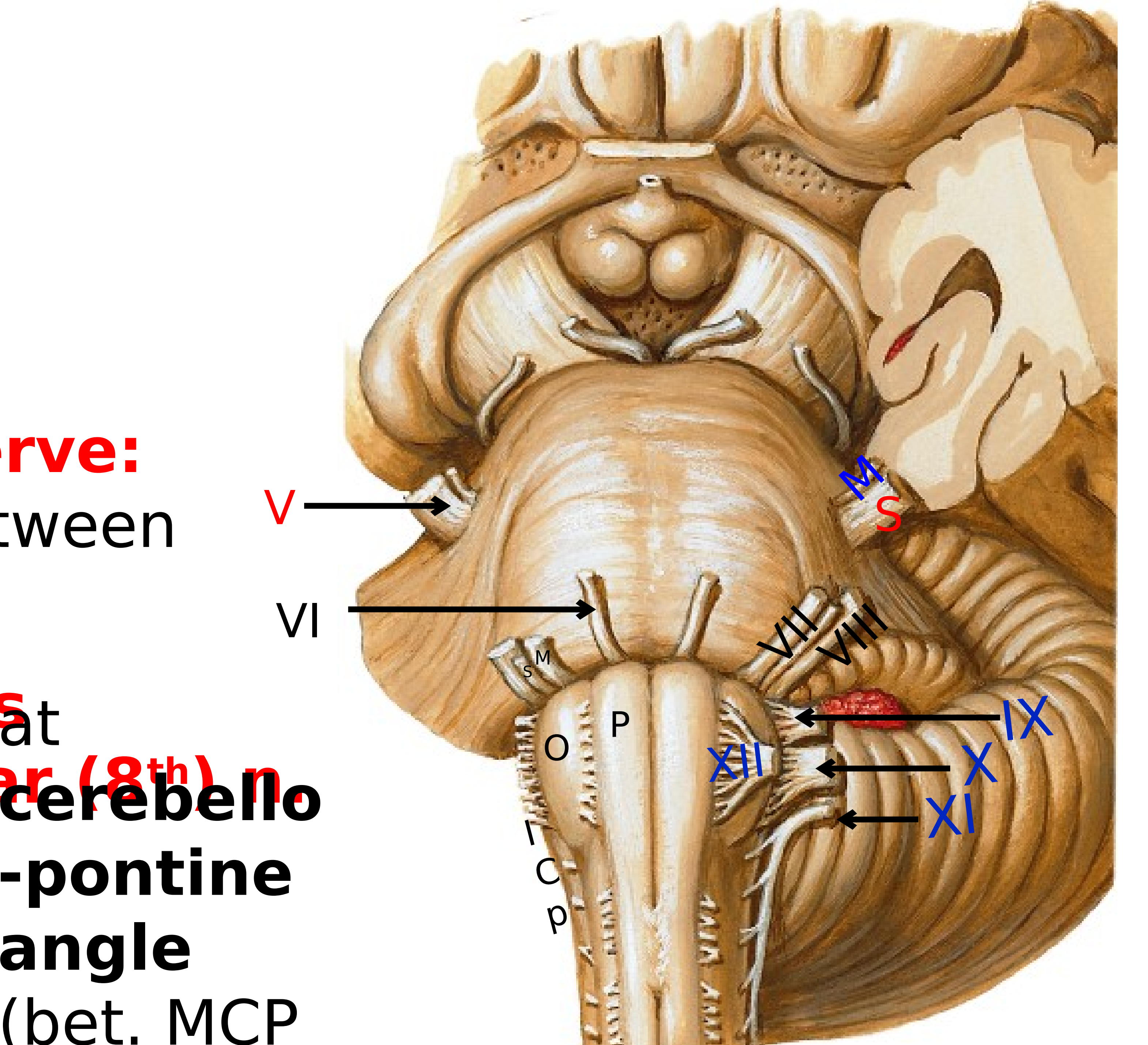
Facial colliculus (

Vestibular ar

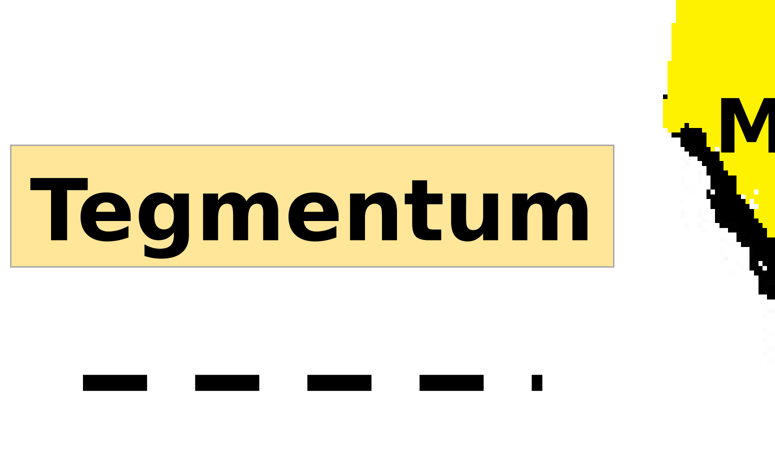

II
Interpeduncular fossa
Optic tract
Cerebral peduncle
III
IV
MIDBRAIN
V
PONS
Basilar sulcus
VI
VII
VIII
MCP
IX
Pyramid
X
Olive
ICP
XI
MEDULLA
XII
Pyramidal decussation

- **Trigeminal (5th) nerve**
- **Abducent (6th) nerve:** at the junction between **pyramid** & **pons**.
- **Facial (7th) nerves**
- **Vestibulo-cochlear (8th) n.**

at **cerebello-pontine angle** (bet. MCP



Inferior Pons (basis pontis) (Facial Colliculus)



MCP

Tegmentum

Pontine nuclei

Transverse pontine fibers: are the axons of the pontine nuclei

cending pyramidal fibers

- Cortico-spinal
- Cortico-nuclear
- Cortico- pontine

CORTICO-PONTO-CEREBELLAR PATHWAY

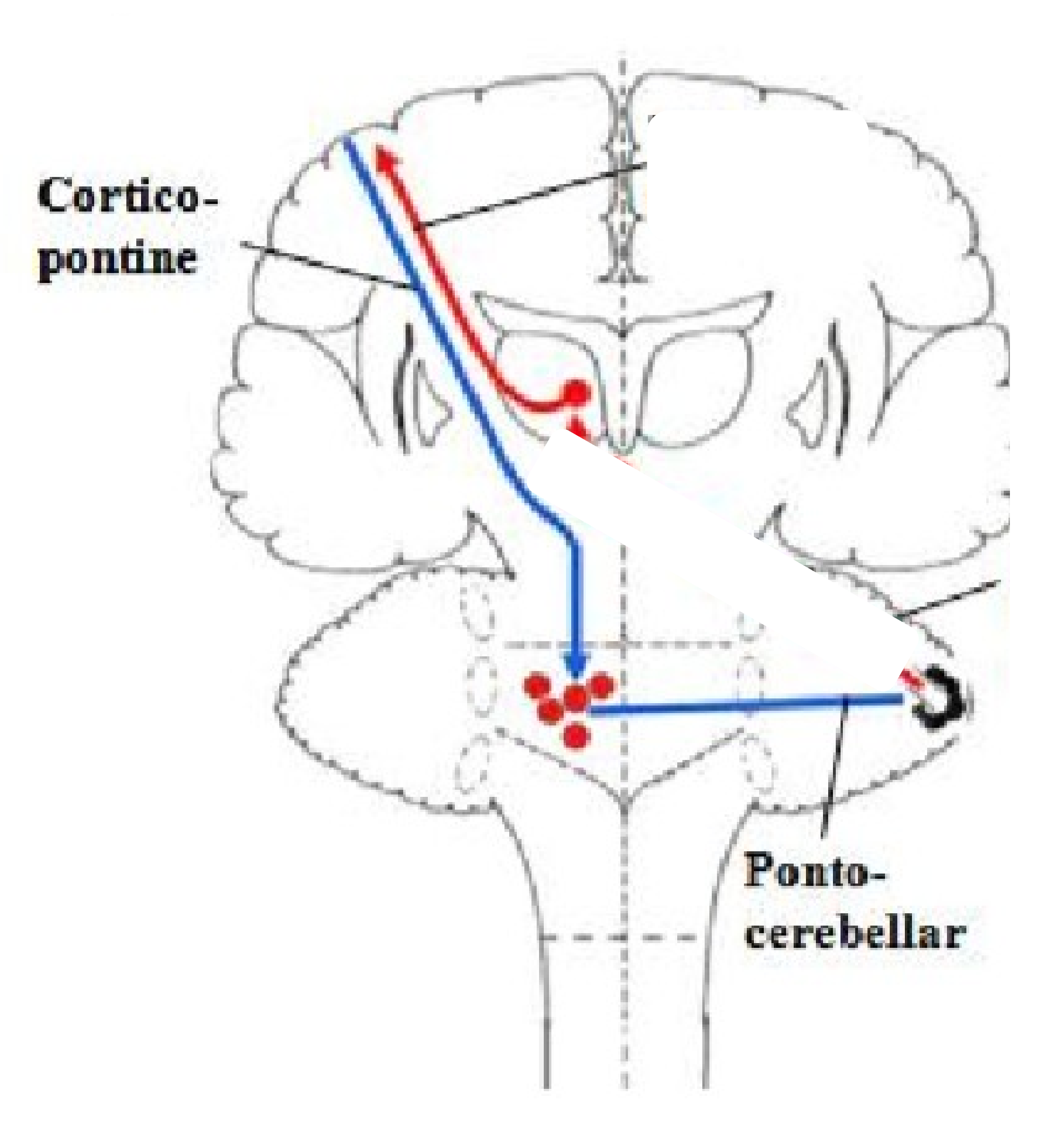
responsible for coordination of voluntary movements

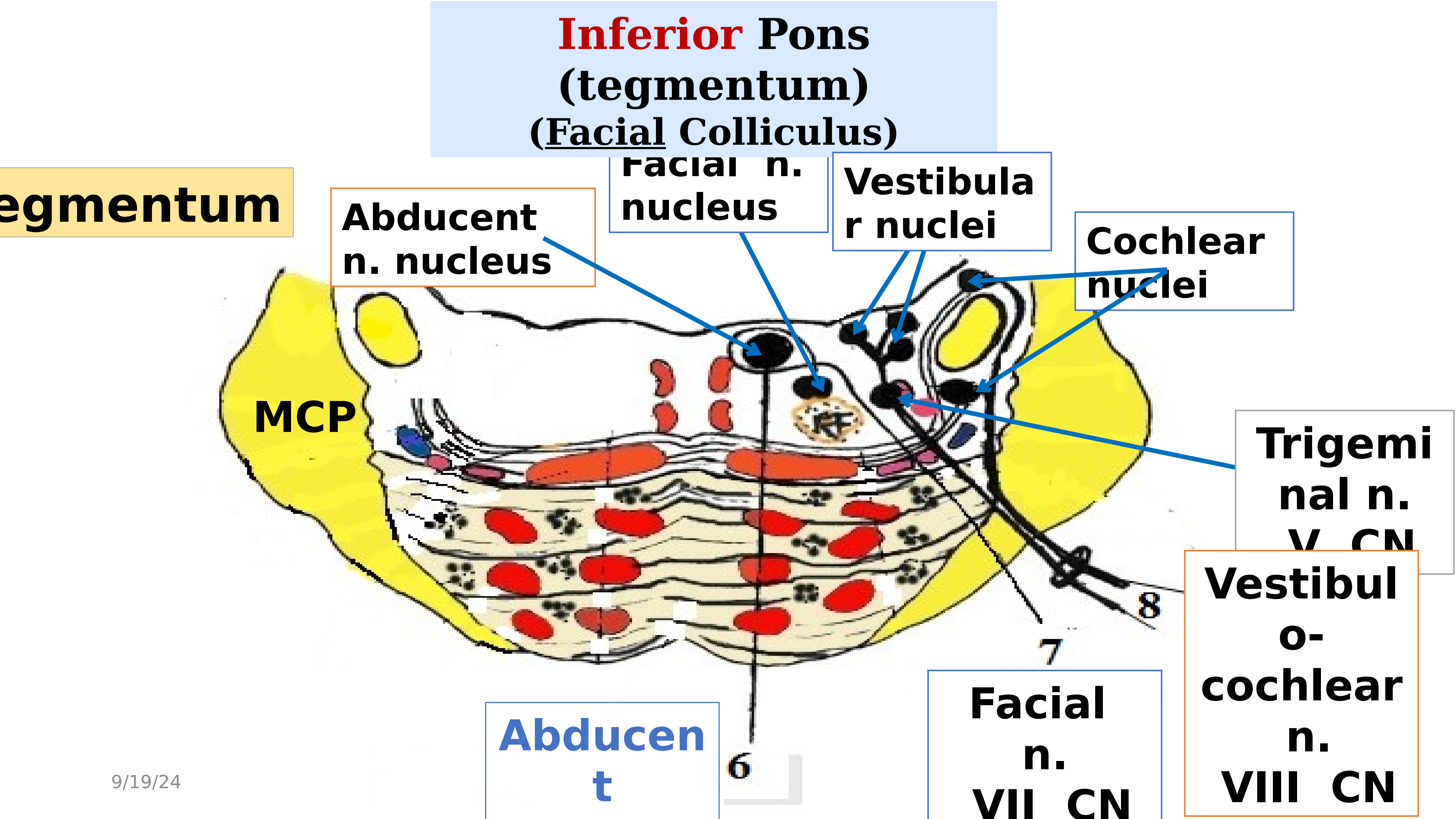
1.Cortico-pontine fibers:

arise from the 4 lobes of cerebral cortex (fronto, parieto, temporo & occipito-pontine fibers descend in crus cerebri end on the pontine nuclei.

2. Ponto-cerebellar fibers:

the axons of the pontine nuclei form the transverse pontine fibers pass via the MCP contralateral cerebellum

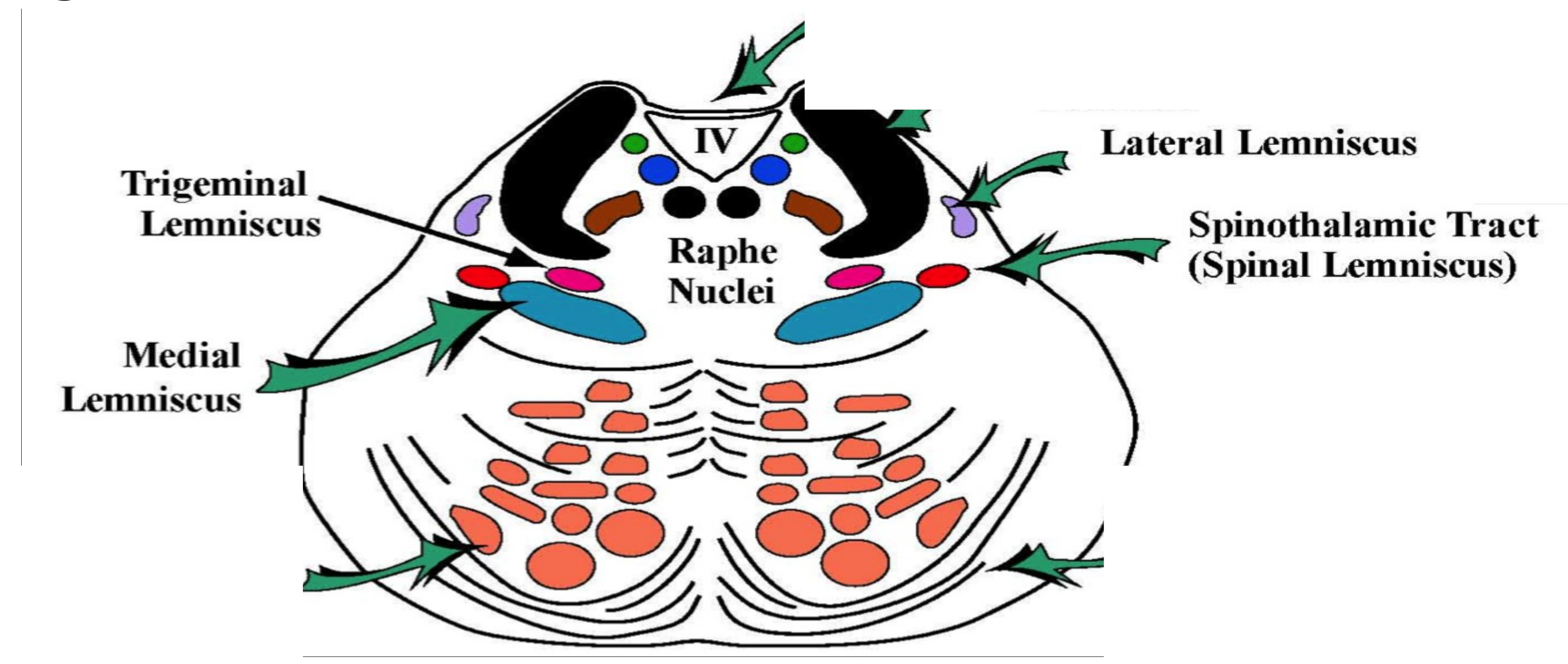




Inferior Pons
(tegmentum)
(Facial Colliculus)
egmentum
Abducent n. nucleus
Facial n. nucleus
Vestibular nuclei
Cochlear nuclei
MCP
RF
Trigeminal n. V CN
Vestibulo-cochlear n. VIII CN
8
7
Facial n. VII CN
6
Abducent

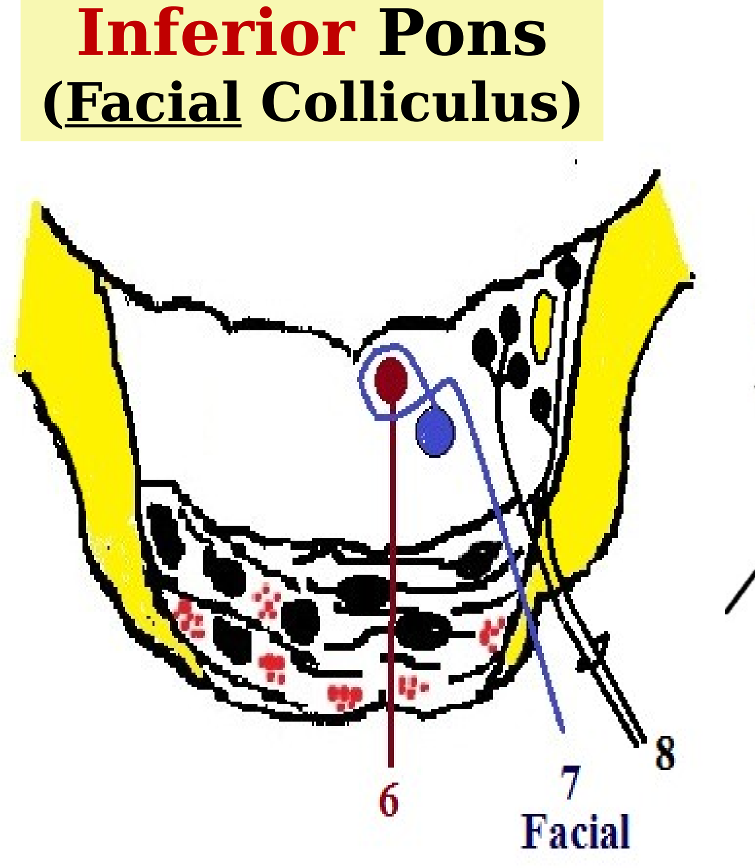
Four lemnisci are

1. Spinal lemnisci
2. Medial lemnisci
3. Lateral lemnisci
4. Trigeminal lemnisci

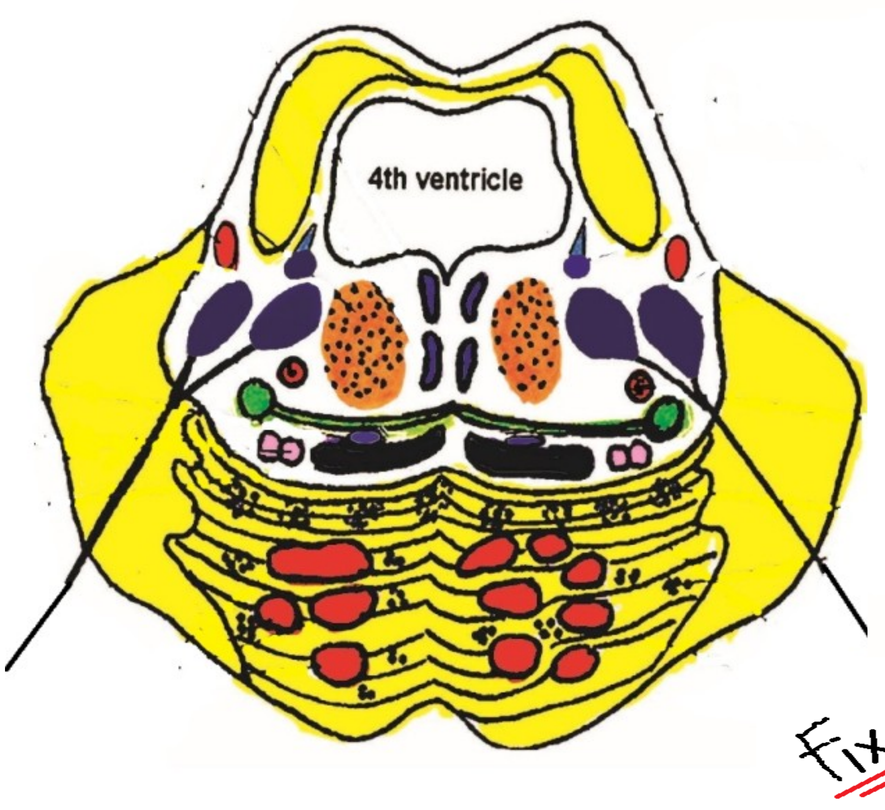


Pons

Inferior Pons
(Facial Colliculus)



Middle Pons



Upper Pons
Lemnisci



Fixed

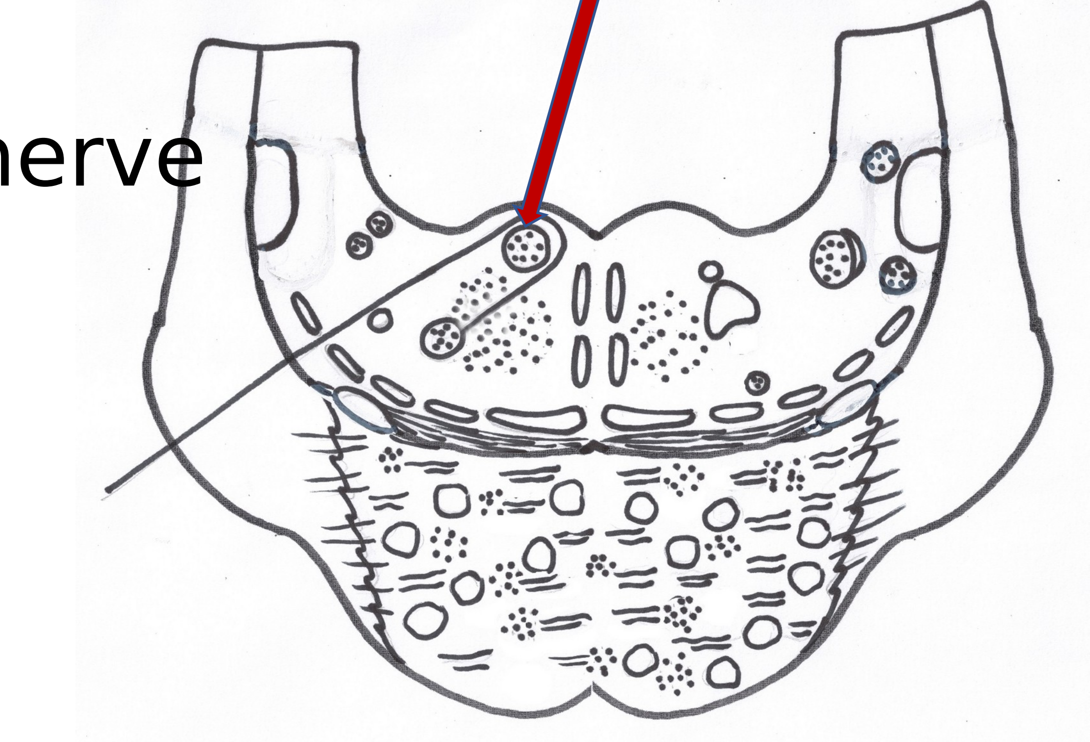
1. Transverse Pontine f.
2. ▲ bundles
3. Pontine N
4. MCP

Lecture Quiz



- **Which of the following structure is indicated by the arrow in the provided diagram?**

1. Spinal nucleus of trigeminal nerve
2. Abducent nucleus
3. Facial nucleus
4. Lateral vestibular nucleus
5. Dorsal cochlear nucleus



Lecture Quiz

- **Which of the following statement is correct concerning a transverse section through the inferior level of pons?**

1. The facial colliculus is formed by roots of facial nerve around trigeminal nucleus.
2. The vestibulocochlear nerve emerges near midline of basis pontis.
3. The pontine nuclei lie between the transverse pontine fibers.
4. Cortico-pontine fibers pass through inferior cerebellar peduncle.
5. The medial lemniscus has rotated so that its long

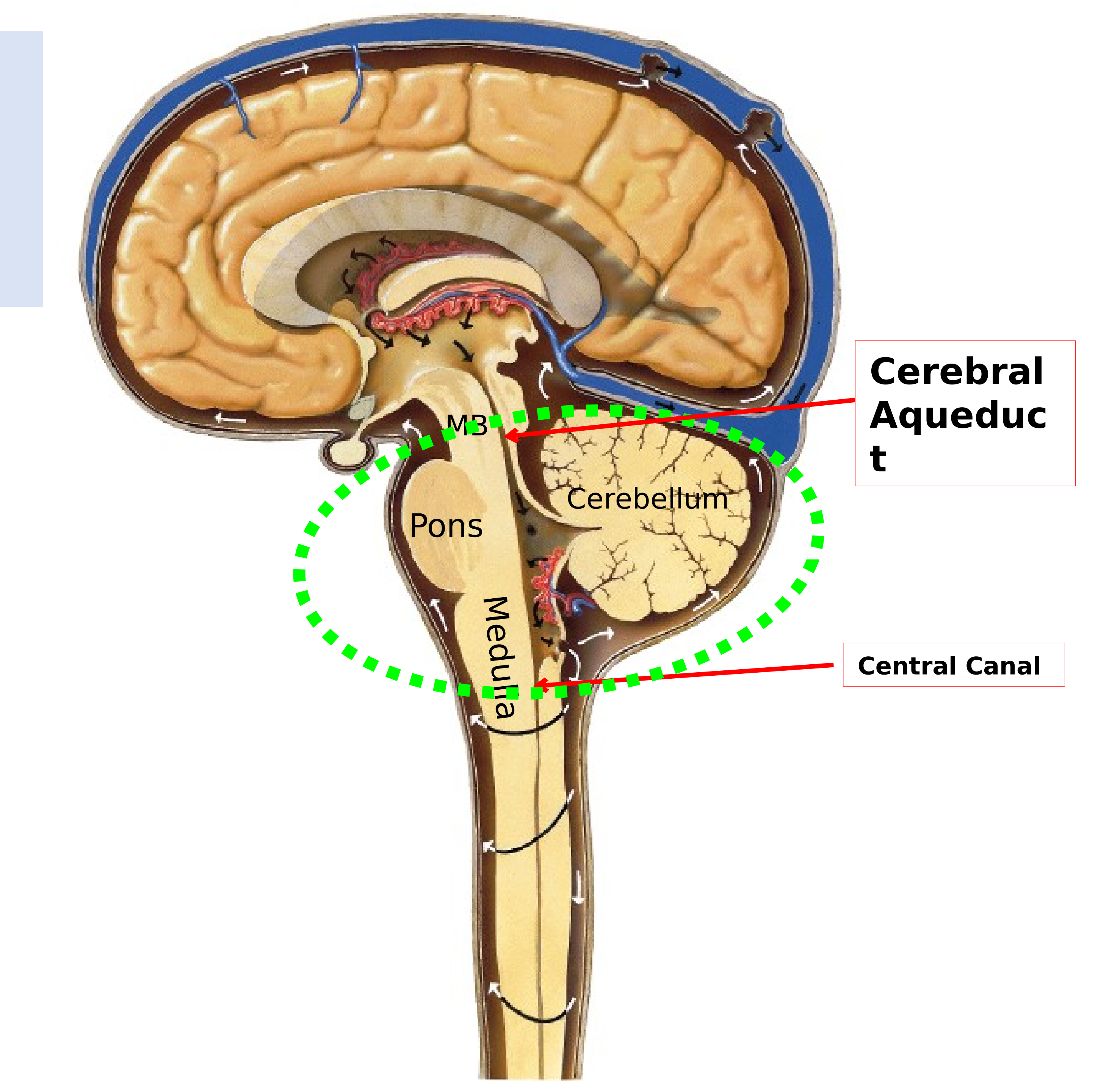
Fourth Ventricle

I

the Hind brain

**It lies between:
pons & medulla in front
& Cerebellum behind.**

above with the cerebral aqueduct of MB and below with



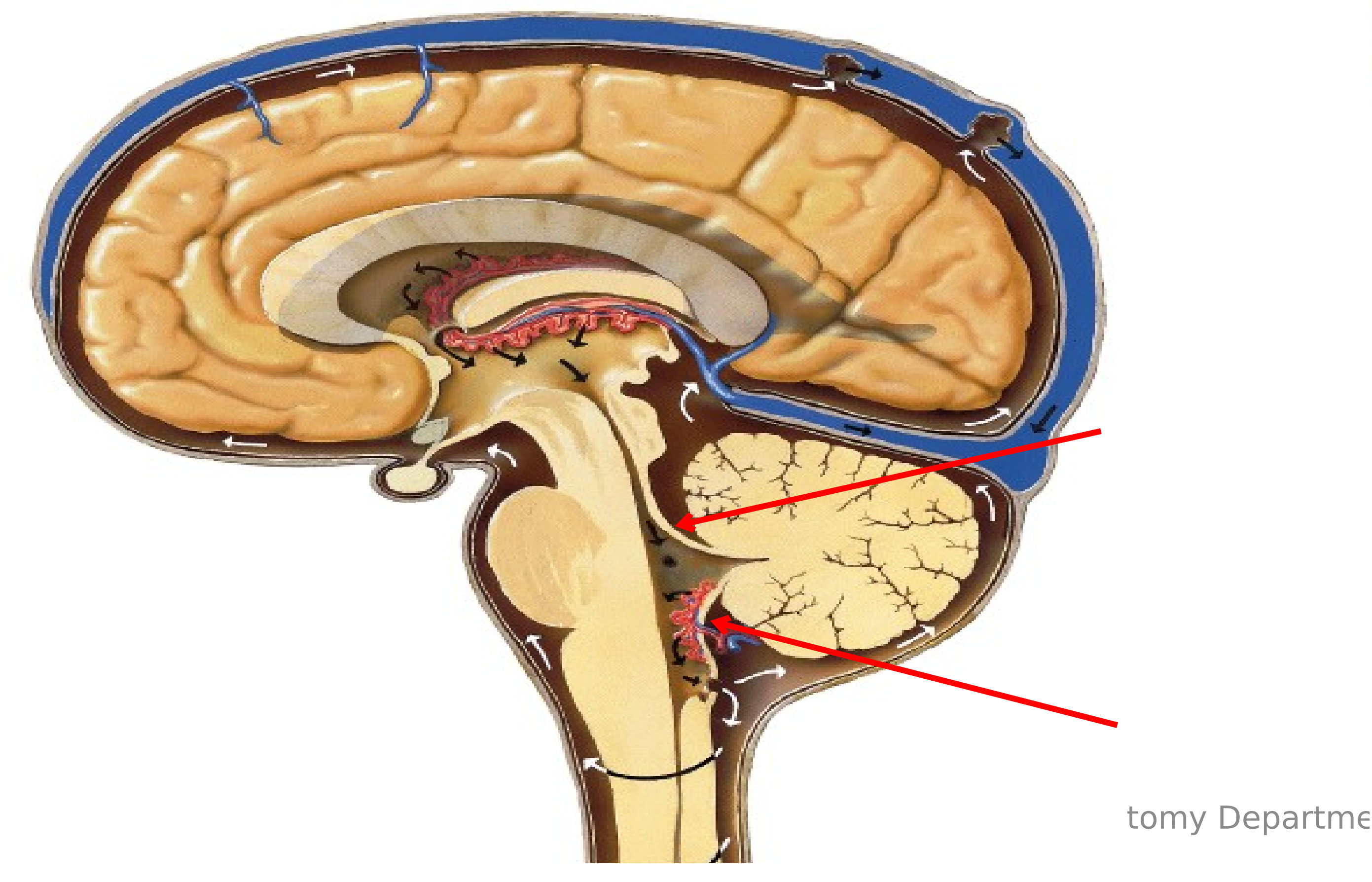
Fourth Ventricle

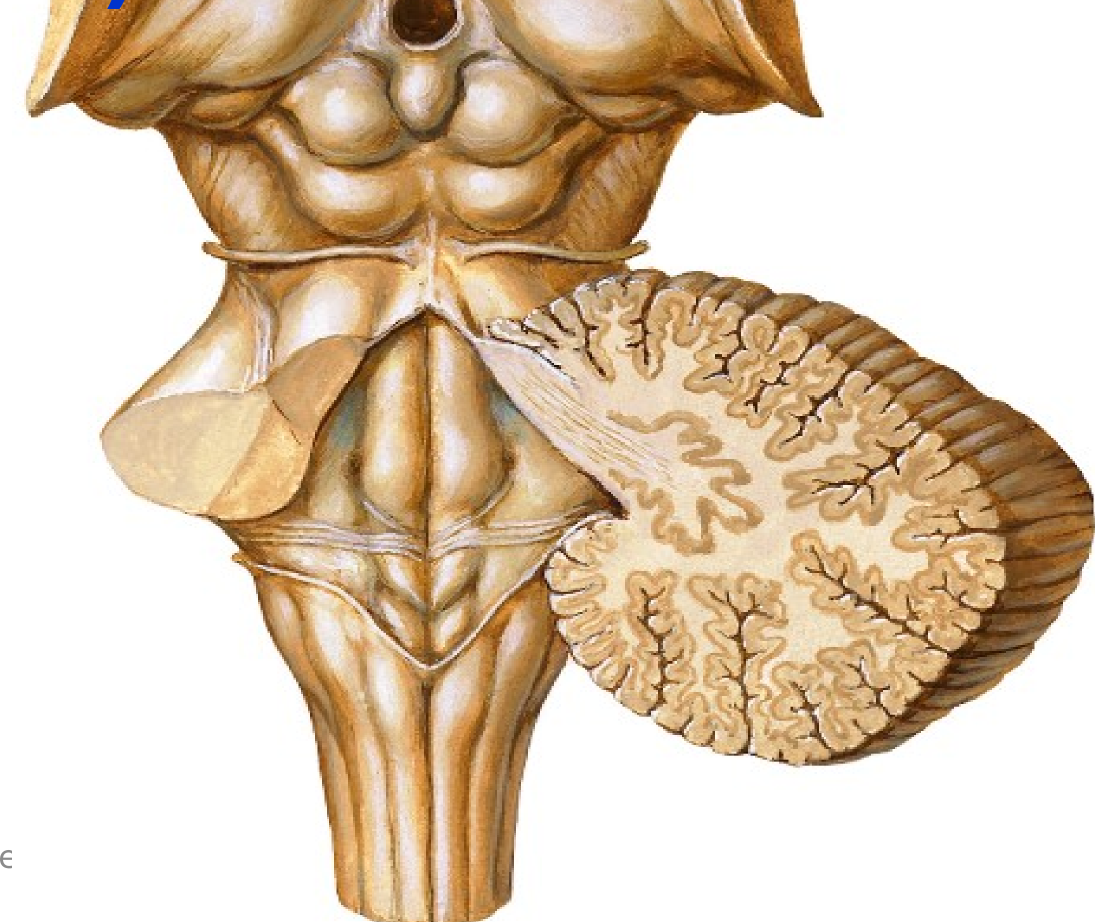
ur

oof :

Medullary Vellum (Tent shaped)

Floor: Rhomboid Fossa

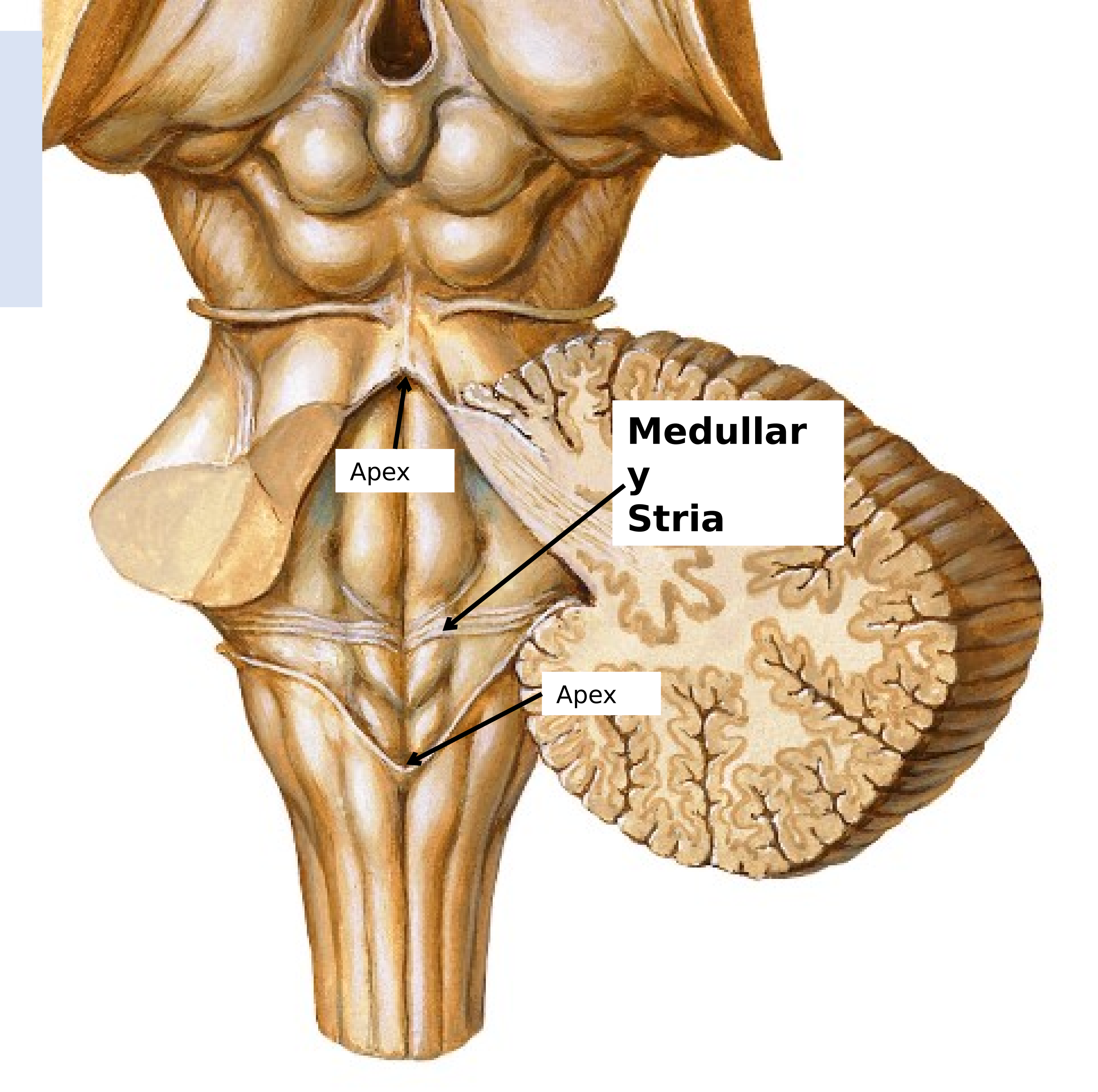




Fourth Ventricle

Is diamond in shape (rhomboidal fossa).
Is divided into 2 triangles by the stria medullaris:

- **upper**



Foramina

Median aperture of Magendie lies at the lower part of the roof.

Lat

the

late

